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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,566	10/03/2003	Jalal Hallak	MAT-0003	3587

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MONTE & MCGRAW, PC
4092 SKIPPACK PIKE
P.O. BOX 650
SKIPPACK, PA 19474

EXAMINER

WILLOUGHBY, TERRENCE RONIQUE

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/678,566	Applicant(s) HALLAK ET AL.	
	Examiner Terrence R. Willoughby	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/30/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 7 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/24/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendment filed on 6/30/2006 has been entered. Accordingly claims 1,2,4 and 7 have been amended and claim 3 has been cancelled. No new claims were added. It also included remarks/arguments.

Claim Objections

1. Claim 1 is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. Regarding claim 1, the phrase "at least on series circuit of an auxiliary semiconductor switch (H1A), likewise triggered by the monitoring unit (UWE) **and** a ballast resistor (RA1)" is unclear and misunderstood how the ballast resistor (RA1) is doing the triggering to the auxiliary semiconductor switch (H1A) when the gate of the auxiliary semiconductor switch (H1A) is connected to the input of the monitoring unit (UWE).
3. Claim 6 is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Regarding claim 6, the phrase " the gate of the main semiconductor switch (SW1) being connected to the **source** and triggered by an output of the monitoring unit (UWE) via a zener diode (ZD1) " is misunderstood how the gate of the main semiconductor is connected?

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,2,4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duffy (US 5,737,160) and in view of Thomas (US 5,805,393) and Gehl (DE 3432680).

7. Regarding claim 1, Duffy discloses (Fig. 10) a power supply (12) in which a feed voltage (U_s) is routed through at least one longitudinal branch to at one output (14), the at least one branch having a disconnect fuse formed as a mechanical switch (6), wherein at least one series circuit of an auxiliary mechanical switch (4), and a PTC resistor (2), is connected in parallel to the mechanical switch (6) and in the event of an overcurrent (column 10, ll. 25-31) absorbs a substantial portion of the overload current in the branch (column 11, ll. 51-column 12, ll. 1-10). Duffy discloses a (PTC) resistor formed as a composite carbon conductive material that performs the same function as a ballast resistor (column 2, ll. 4-41).

Duffy does not disclose the mechanical switches (4,6) are semiconductor switches.

However, Thomas discloses an overcurrent protection circuit with a PTC trip endurance (Abstract) that uses bypass semiconductor switches, such as FET types (column 2, ll. 66-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the mechanical switches of Duffy with the power semiconductor switches (FET's) taught by Thomas because of their simplicity and reduction in cost.

Duffy and Thomas does not disclose the monitoring unit (UWE) being set up to supply a disconnect signal (s1) to the semiconductor switch when there are changes in voltage or current beyond pre-definable tolerances.

However, Gehl (Fig. 1), discloses a protection circuit against overload and short circuit comprising a monitoring unit (T2) that measures the current through the controllable semiconductor switch (T1) and set up to supply a disconnect signal to the semiconductor switch when there are changes in voltage or current (i.e. overload or short circuit) beyond pre-definable tolerances. (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a monitoring unit taught by Gehl to the electrical switching arrangement and PTC device of Duffy and Thomas to prevent shut down of circuit due to brief and long-term transient overcurrent conditions.

8. Regarding claim 2, Duffy in view of Thomas and in view of Gehl discloses the claimed said power supply as described in claim 1. Gehl (Fig. 1), discloses the monitoring unit is set up to keep the auxiliary semiconductor circuit (T3, RP) at least substantially disconnected during normal operation, but to switch it on in the event of an overload while simultaneously disconnecting the main semiconductor switch (T1) (Abstract).

9. Regarding claim 4, Duffy in view of Thomas and in view of Gehl discloses the claimed said power supply as described in claim 1. Gehl (Fig. 1), discloses wherein the pre-definable short-circuit current of the branch is essentially determined by the ballast resistor (R_p) and the feed voltage (U), so that $R1A \approx U_S / I_{K1}$.

10. Regarding claim 7, Duffy in view Thomas and in view of Gehl discloses the claimed said power supply as described in claim 1. Duffy discloses a (PTC) resistor formed as a composite carbon conductive material that performs the same function as a ballast resistor (column 2, ll. 4-41). Gehl (Fig. 1) also discloses a ballast resistor (R_P) is formed as a composite carbon resistor.

11. Regarding claim 5, Duffy in view Thomas and in view of Gehl discloses the claimed said power supply as described in claim 1. Thomas discloses bypass semiconductor switches, such as FET types are used in overcurrent protection (column 2, ll. 66-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the mechanical switches of Duffy with the power semiconductor switches (FET's) taught by Thomas because of their simplicity and reduction in cost.

Allowable Subject Matter

9. Claim 6 objected to as being dependent upon a rejected base claim 5, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Combined claim 6 would be allowable over the art of record because the prior art does not teach the semiconductor switches are of the self-locking FET type, the gate of the main semiconductor switch being connected to the source and triggered by an output of the monitoring unit via a zener diode and the gate of the auxiliary semiconductor switch being triggered directly by the same output as set forth in the claimed invention.

Response to Arguments

12. Applicant's arguments with respect to claims 1,2,4,5 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jehlicka et al. (US 6,710,698) discloses a semiconductor fuse for electrical consumers. Seiler (US 4,186,418) discloses an overvoltage protected integrated circuit network, to control current flow through resistive or inductive loads (abstract).

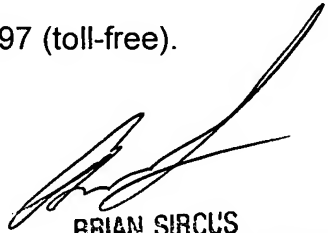
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrence R. Willoughby whose telephone number is 571-272-2725. The examiner can normally be reached on 8-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571/272-2800 ext. 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRW
9/19/06



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2836